

SYSTEM **P**LANNING & **A**NALYSIS **R**EPORT

S-82

T. H. 212
T. H. 694 TO ST. CROIX RIVER

S. P. 8214-47

FEBRUARY, 1972

PREPARED BY
OFFICE OF SYSTEM PLANNING



**MINNESOTA
DEPARTMENT
OF HIGHWAYS**

DEPARTMENT HIGHWAY - Statewide Plan.
Room 807 Ext. 3158

Office Memorandum

TO : Paul G. Velz
Road Design Engineer

DATE: February 16, 1972

FROM : Morris Gildemeister, Chief
Statewide Planning Section

SUBJECT: T.H. 212, T.H. 694 to St. Croix River
S.P. 8214-47
System Planning & Analysis Report S-82

The Statewide Planning Section transmits this report in response to K. K. McRae's, November 8, 1971 request for the 1985 ADT, DHV, and HCADT for the project location shown on the map on page 2.

The estimated 1985 ADT volumes are shown on the map on page 3.

For each segment numbered on the map on pages 3 & 4, the following data are tabulated on pages 5-9 and 10-13 respectively:

- (a) Total ADT
- (b) Vehicle Type Distribution
- (c) Total HCADT

The basic data, method, and assumptions used to prepare this report are presented on page 14.

Morris Gildemeister

Morris Gildemeister, Chief
Statewide Planning Section

WF

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
WORK MAP

Project Location
S.P. 8214-47



TRAFFIC ESTIMATE DATA

DESIGN YEAR 1985 PART 1 OF 5

FOR

T.H. 212 S.P. 8214-47 LENGTH -- MILES
COUNTY Washington LOCATION T.H. 694 to St. Croix River

BASED ON

1985 ADT FROM TRAFFIC ANALYSIS UNIT

SHOWING

TOTAL ADT ON SEGMENTS 1 THROUGH 11 AS
DEFINED ON ATTACHED INDEX MAP on page 3 for Alternate 1B

| VEHICLE # TYPE | SEGMENT NUMBER | | | | | | | | | | |
|-----------------------------|----------------|------|-------|------|------|------|------|-------|-------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 0 | 15490 | 8520 | 11737 | 4970 | 8701 | 8723 | 3456 | 10651 | 9580 | 8463 | 1695 |
| 1 | 454 | 241 | 336 | 112 | 251 | 230 | 144 | 246 | 219 | 219 | 55 |
| 2 | 114 | 48 | 75 | 17 | 46 | 56 | 17 | 56 | 60 | 66 | 11 |
| 3 | 55 | 27 | 41 | 10 | 26 | 24 | 10 | 16 | 13 | 25 | 7 |
| 4 | 50 | 30 | 37 | 11 | 38 | 24 | 18 | 39 | 41 | 18 | 5 |
| 5 | 56 | 34 | 21 | 40 | 43 | 75 | 19 | 143 | 134 | 21 | 6 |
| 6 | 181 | 100 | 153 | 40 | 95 | 68 | 36 | 38 | 53 | 88 | 21 |
| TOTAL ADT | 16400 | 9000 | 12400 | 5200 | 9200 | 9200 | 3700 | 11200 | 10100 | 8900 | 1800 |
| TOTAL H. COMM. ADT | 910 | 480 | 663 | 230 | 499 | 477 | 244 | 549 | 520 | 437 | 105 |
| TOTAL DHV | | | | | | | | | | | |
| DIRECTIONAL DISTRIBUTION | | | | | | | | | | | |

* VEHICLE TYPE CODE

- 0 = PASSENGER CARS AND 4 TIRE TRUCKS
1 = SINGLE UNIT-2 AXLE-6 TIRE TRUCKS
2 = SINGLE UNIT-3 AXLE TRUCKS
3 = TRACTOR-TRUCK OR SEMI-TRAILER- 3 AXLES
- 4 = TRACTOR-TRUCK OR SEMI-TRAILER - 4 AXLES
5 = TRACTOR-TRUCK OR SEMI-TRAILER - 5 AXLES
6 = BUSES AND TRUCKS WITH TRAILERS

TRAFFIC ESTIMATE DATA

DESIGN YEAR 1985 PART 2 OF 5

FOR

T.H. 212 S.P. 8214-47 LENGTH -- MILES
COUNTY Washington LOCATION T.H. 694 to St. Croix River

BASED ON

1985 ADT FROM TRAFFIC ANALYSIS UNIT

SHOWING

TOTAL ADT ON SEGMENTS 12 THROUGH 22 AS
DEFINED ON ATTACHED INDEX MAP on page 3 For Alternate 1B

| VEHICLE # TYPE | SEGMENT NUMBER | | | | | | | | | | |
|-----------------------------|----------------|------|------|-----|------|------|------|------|------|------|------|
| | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 0 | 4616 | 1415 | 2921 | 841 | 5522 | 4948 | 4415 | 3841 | 4532 | 5106 | 5048 |
| 1 | 149 | 49 | 94 | 35 | 130 | 116 | 162 | 148 | 66 | 80 | 153 |
| 2 | 29 | 9 | 18 | 4 | 36 | 31 | 25 | 20 | 42 | 47 | 18 |
| 3 | 18 | 3 | 11 | 2 | 9 | 8 | 13 | 12 | 13 | 14 | -- |
| 4 | 13 | 4 | 8 | 4 | 15 | 15 | 17 | 17 | 1 | 1 | 40 |
| 5 | 17 | 6 | 11 | 5 | 64 | 63 | 20 | 19 | 2 | 3 | 132 |
| 6 | 58 | 14 | 37 | 9 | 24 | 19 | 48 | 43 | 44 | 49 | 9 |
| TOTAL ADT | 4900 | 1500 | 3100 | 900 | 5800 | 5200 | 4700 | 4100 | 4700 | 5300 | 5400 |
| TOTAL H. COMM. ADT | 284 | 85 | 179 | 59 | 278 | 252 | 285 | 259 | 168 | 194 | 352 |
| TOTAL DHV | | | | | | | | | | | |
| DIRECTIONAL DISTRIBUTION | | | | | | | | | | | |

* VEHICLE TYPE CODE

- 0 = PASSENGER CARS AND 4 TIRE TRUCKS
1 = SINGLE UNIT-2 AXLE-6 TIRE TRUCKS
2 = SINGLE UNIT-3 AXLE TRUCKS
3 = TRACTOR-TRUCK OR SEMI-TRAILER- 3 AXLES
- 4 = TRACTOR-TRUCK OR SEMI-TRAILER - 4 AXLES
5 = TRACTOR-TRUCK OR SEMI-TRAILER - 5 AXLES
6 = BUSES AND TRUCKS WITH TRAILERS

TRAFFIC ESTIMATE DATA

DESIGN YEAR 1985 PART 3 OF 5

FOR

T.H. 212 S.P. 8214-47 LENGTH --- MILES
COUNTY Washington LOCATION T.H. 694 to St. Croix River

BASED ON

1985 ADT FROM TRAFFIC ANALYSIS UNIT

SHOWING

TOTAL ADT ON SEGMENTS 23 THROUGH 33 AS

DEFINED ON ATTACHED INDEX MAP on page 3 for Alternate 1B

| VEHICLE # TYPE | SEGMENT NUMBER | | | | | | | | | | |
|-----------------------------|----------------|------|------|------|------|------|------|------|------|------|------|
| | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 |
| 0 | 5622 | 8947 | 968 | 1452 | 3710 | 3803 | 5039 | 2476 | 1904 | 3422 | 2660 |
| 1 | 167 | 223 | 13 | 27 | 80 | 83 | 145 | 54 | 42 | 102 | 93 |
| 2 | 23 | 67 | 2 | 3 | 29 | 30 | 39 | 12 | 8 | 26 | 20 |
| 3 | 1 | 26 | 2 | 3 | 13 | 14 | 13 | 8 | 7 | 5 | 4 |
| 4 | 40 | 18 | 1 | 1 | 8 | 8 | 11 | 9 | 6 | 8 | 6 |
| 5 | 133 | 22 | 1 | 2 | 8 | 8 | 14 | 14 | 15 | 11 | 9 |
| 6 | 14 | 92 | 8 | 12 | 52 | 54 | 39 | 27 | 18 | 19 | 8 |
| TOTAL ADT | 6000 | 9400 | 1000 | 1500 | 3900 | 4000 | 5300 | 2600 | 2000 | 3600 | 2800 |
| TOTAL H. COMM. ADT | 378 | 453 | 32 | 48 | 190 | 197 | 261 | 124 | 96 | 178 | 140 |
| TOTAL DHV | | | | | | | | | | | |
| DIRECTIONAL DISTRIBUTION | | | | | | | | | | | |

* VEHICLE TYPE CODE

- 0 = PASSENGER CARS AND 4 TIRE TRUCKS
 1 = SINGLE UNIT-2 AXLE-6 TIRE TRUCKS
 2 = SINGLE UNIT-3 AXLE TRUCKS
 3 = TRACTOR-TRUCK OR SEMI-TRAILER- 3 AXLES
 4 = TRACTOR-TRUCK OR SEMI-TRAILER - 4 AXLES
 5 = TRACTOR-TRUCK OR SEMI-TRAILER - 5 AXLES
 6 = BUSES AND TRUCKS WITH TRAILERS

TRAFFIC ESTIMATE DATA

DESIGN YEAR 1985 PART 4 OF 5

FOR

T.H. 212 S.P. 8214-47 LENGTH --- MILES
COUNTY Washington LOCATION T.H. 694 to St. Croix River

BASED ON

1985 ADT FROM TRAFFIC ANALYSIS UNIT

SHOWING

TOTAL ADT ON SEGMENTS 34 THROUGH 44 AS

DEFINED ON ATTACHED INDEX MAP on page 3 for Alternate 1B

| VEHICLE # TYPE | SEGMENT NUMBER | | | | | | | | | | |
|-----------------------------|----------------|------|------|------|------|------|------|------|------|------|-----|
| | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 |
| 0 | 1130 | 3790 | 4405 | 4879 | 2526 | 6994 | 3445 | 5872 | 3476 | 2969 | 573 |
| 1 | 33 | 126 | 110 | 130 | 74 | 156 | 63 | 214 | 159 | 68 | 13 |
| 2 | 12 | 32 | 37 | 34 | 16 | 37 | 17 | 33 | 26 | 12 | 5 |
| 3 | 4 | 8 | 10 | 15 | 10 | 7 | 2 | 10 | 6 | 5 | 1 |
| 4 | 2 | 8 | 23 | 24 | 13 | 20 | 12 | 15 | 6 | 10 | 1 |
| 5 | 3 | 12 | 92 | 81 | 34 | 66 | 55 | 47 | 25 | 29 | 7 |
| 6 | 16 | 24 | 23 | 37 | 27 | 20 | 6 | 9 | 2 | 7 | -- |
| TOTAL ADT | 1200 | 4000 | 4700 | 5200 | 2700 | 7300 | 3600 | 6200 | 3700 | 3100 | 600 |
| TOTAL H. COMM. ADT | 70 | 210 | 295 | 321 | 174 | 306 | 155 | 328 | 224 | 131 | 27 |
| TOTAL DHV | | | | | | | | | | | |
| DIRECTIONAL DISTRIBUTION | | | | | | | | | | | |

* VEHICLE TYPE CODE

- 0 = PASSENGER CARS AND 4 TIRE TRUCKS
 1 = SINGLE UNIT-2 AXLE-6 TIRE TRUCKS
 2 = SINGLE UNIT-3 AXLE TRUCKS
 3 = TRACTOR-TRUCK OR SEMI-TRAILER- 3 AXLES
 4 = TRACTOR-TRUCK OR SEMI-TRAILER - 4 AXLES
 5 = TRACTOR-TRUCK OR SEMI-TRAILER - 5 AXLES
 6 = BUSES AND TRUCKS WITH TRAILERS

TRAFFIC ESTIMATE DATA

DESIGN YEAR 1985 PART 5 OF 5

FOR

T.H. 212 S.P. 8214-47 LENGTH --- MILES
COUNTY Washington LOCATION T.H. 694 to St. Croix River

BASED ON

1985 ADT FROM TRAFFIC ANALYSIS UNIT

SHOWING

TOTAL ADT ON SEGMENTS 45 THROUGH 47 AS
DEFINED ON ATTACHED INDEX MAP on page 3 for Alternate 1B

| VEHICLE * TYPE | SEGMENT NUMBER | | | | | | | | | | |
|-----------------------------|----------------|------|------|--|--|--|--|--|--|--|--|
| | 45 | 46 | 47 | | | | | | | | |
| 0 | 5390 | 6518 | 4122 | | | | | | | | |
| 1 | 197 | 161 | 106 | | | | | | | | |
| 2 | 38 | 32 | 25 | | | | | | | | |
| 3 | 7 | 10 | 6 | | | | | | | | |
| 4 | 11 | 18 | 9 | | | | | | | | |
| 5 | 53 | 40 | 18 | | | | | | | | |
| 6 | 4 | 21 | 14 | | | | | | | | |
| TOTAL ADT | 5700 | 6800 | 4300 | | | | | | | | |
| TOTAL H. COMM. ADT | 310 | 282 | 178 | | | | | | | | |
| TOTAL DHV | | | | | | | | | | | |
| DIRECTIONAL DISTRIBUTION | | | | | | | | | | | |

* VEHICLE TYPE CODE

- 0 = PASSENGER CARS AND 4 TIRE TRUCKS
1 = SINGLE UNIT-2 AXLE-6 TIRE TRUCKS
2 = SINGLE UNIT-3 AXLE TRUCKS
3 = TRACTOR-TRUCK OR SEMI-TRAILER- 3 AXLES
- 4 = TRACTOR-TRUCK OR SEMI-TRAILER - 4 AXLES
5 = TRACTOR-TRUCK OR SEMI-TRAILER - 5 AXLES
6 = BUSES AND TRUCKS WITH TRAILERS

TRAFFIC ESTIMATE DATA

DESIGN YEAR 1985 PART 1 OF 4

FOR

T.H. 212 S.P. 8214-47 LENGTH --- MILES
COUNTY Washington LOCATION T.H. 694 to St. Croix River

BASED ON

1985 ADT FROM TRAFFIC ANALYSIS UNIT

SHOWING

TOTAL ADT ON SEGMENTS 1 THROUGH 11 AS
DEFINED ON ATTACHED INDEX MAP on page 4 for Alternate 2B

| VEHICLE * TYPE | SEGMENT NUMBER | | | | | | | | | | |
|-----------------------------|----------------|------|-------|------|------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 0 | 15490 | 8995 | 11737 | 4970 | 9176 | 8723 | 4616 | 1695 | 3931 | 2972 | 2921 |
| 1 | 454 | 253 | 336 | 112 | 263 | 230 | 149 | 55 | 150 | 132 | 96 |
| 2 | 114 | 51 | 75 | 17 | 49 | 56 | 29 | 11 | 26 | 18 | 18 |
| 3 | 55 | 28 | 41 | 10 | 27 | 24 | 18 | 7 | 12 | 9 | 11 |
| 4 | 50 | 32 | 37 | 11 | 40 | 24 | 13 | 5 | 17 | 18 | 8 |
| 5 | 56 | 36 | 21 | 40 | 45 | 75 | 17 | 6 | 19 | 18 | 11 |
| 6 | 181 | 105 | 153 | 40 | 100 | 68 | 58 | 21 | 45 | 33 | 37 |
| TOTAL ADT | 16400 | 9500 | 12400 | 5200 | 9700 | 9200 | 4900 | 1800 | 4200 | 3200 | 3100 |
| TOTAL H. COMM. ADT | 910 | 505 | 663 | 230 | 524 | 477 | 284 | 105 | 269 | 228 | 179 |
| TOTAL DHV | | | | | | | | | | | |
| DIRECTIONAL DISTRIBUTION | | | | | | | | | | | |

* VEHICLE TYPE CODE

- 0 = PASSENGER CARS AND 4 TIRE TRUCKS
1 = SINGLE UNIT-2 AXLE-6 TIRE TRUCKS
2 = SINGLE UNIT-3 AXLE TRUCKS
3 = TRACTOR-TRUCK OR SEMI-TRAILER- 3 AXLES
- 4 = TRACTOR-TRUCK OR SEMI-TRAILER - 4 AXLES
5 = TRACTOR-TRUCK OR SEMI-TRAILER - 5 AXLES
6 = BUSES AND TRUCKS WITH TRAILERS

TRAFFIC ESTIMATE DATA

DESIGN YEAR 1985 PART 2 OF 4

FOR

T.H. 212 S.P. 8214-47 LENGTH -- MILES
COUNTY Washington LOCATION T.H. 694 to St. Croix River

BASED ON

1985 ADT FROM TRAFFIC ANALYSIS UNIT

SHOWING

TOTAL ADT ON SEGMENTS 12 THROUGH 22 AS

DEFINED ON ATTACHED INDEX MAP on page 4 for Alternate 2B

| VEHICLE # TYPE | SEGMENT NUMBER | | | | | | | | | | |
|-----------------------------|----------------|------|------|------|------|------|------|------|------|------|-----|
| | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 0 | 1415 | 5522 | 2758 | 8280 | 2732 | 1974 | 5929 | 2380 | 2817 | 5213 | 573 |
| 1 | 49 | 130 | 82 | 212 | 45 | 57 | 175 | 82 | 110 | 165 | 13 |
| 2 | 9 | 36 | 20 | 56 | 19 | 11 | 41 | 21 | 16 | 23 | 5 |
| 3 | 3 | 9 | 3 | 12 | 6 | 10 | 6 | 1 | 5 | 9 | 1 |
| 4 | 4 | 15 | 11 | 26 | 13 | 11 | 14 | 6 | 4 | 13 | 1 |
| 5 | 6 | 64 | 19 | 83 | 71 | 15 | 16 | 5 | 43 | 65 | 7 |
| 6 | 14 | 24 | 7 | 31 | 14 | 22 | 19 | 5 | 5 | 12 | -- |
| TOTAL ADT | 1500 | 5800 | 2900 | 8700 | 2900 | 2100 | 6200 | 2500 | 3000 | 5500 | 600 |
| TOTAL H. COMM. ADT | 85 | 278 | 142 | 420 | 168 | 126 | 271 | 120 | 183 | 287 | 27 |
| TOTAL DHV | | | | | | | | | | | |
| DIRECTIONAL DISTRIBUTION | | | | | | | | | | | |

* VEHICLE TYPE CODE

- 0 = PASSENGER CARS AND 4 TIRE TRUCKS
1 = SINGLE UNIT-2 AXLE-6 TIRE TRUCKS
2 = SINGLE UNIT-3 AXLE TRUCKS
3 = TRACTOR-TRUCK OR SEMI-TRAILER- 3 AXLES
- 4 = TRACTOR-TRUCK OR SEMI-TRAILER - 4 AXLES
5 = TRACTOR-TRUCK OR SEMI-TRAILER - 5 AXLES
6 = BUSES AND TRUCKS WITH TRAILERS

TRAFFIC ESTIMATE DATA

DESIGN YEAR 1985 PART 3 OF 4

FOR

T.H. 212 S.P. 8214-47 LENGTH -- MILES
COUNTY Washington LOCATION T.H. 694 to St. Croix River

BASED ON

1985 ADT FROM TRAFFIC ANALYSIS UNIT

SHOWING

TOTAL ADT ON SEGMENTS 23 THROUGH 33 AS

DEFINED ON ATTACHED INDEX MAP on page 4 for Alternate 2B

| VEHICLE # TYPE | SEGMENT NUMBER | | | | | | | | | | |
|-----------------------------|----------------|------|------|------|-------|------|------|------|------|------|------|
| | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 |
| 0 | 2969 | 5390 | 6518 | 4122 | 10575 | 3431 | 1716 | 7418 | 4386 | 1990 | 2464 |
| 1 | 68 | 197 | 161 | 106 | 261 | 86 | 43 | 196 | 93 | 39 | 49 |
| 2 | 12 | 38 | 32 | 25 | 66 | 25 | 12 | 58 | 21 | 14 | 18 |
| 3 | 5 | 7 | 10 | 6 | 17 | 8 | 4 | 21 | 6 | 2 | 3 |
| 4 | 10 | 11 | 18 | 9 | 37 | 8 | 4 | 16 | 18 | 9 | 10 |
| 5 | 29 | 53 | 40 | 18 | 88 | 8 | 4 | 13 | 61 | 39 | 46 |
| 6 | 7 | 4 | 21 | 14 | 56 | 34 | 17 | 78 | 15 | 8 | 10 |
| TOTAL ADT | 3100 | 5700 | 6800 | 4300 | 11100 | 3600 | 1800 | 7800 | 4600 | 2100 | 2600 |
| TOTAL H. COMM. ADT | 131 | 310 | 282 | 178 | 525 | 169 | 84 | 382 | 214 | 110 | 136 |
| TOTAL DHV | | | | | | | | | | | |
| DIRECTIONAL DISTRIBUTION | | | | | | | | | | | |

* VEHICLE TYPE CODE

- 0 = PASSENGER CARS AND 4 TIRE TRUCKS
1 = SINGLE UNIT-2 AXLE-6 TIRE TRUCKS
2 = SINGLE UNIT-3 AXLE TRUCKS
3 = TRACTOR-TRUCK OR SEMI-TRAILER- 3 AXLES
- 4 = TRACTOR-TRUCK OR SEMI-TRAILER - 4 AXLES
5 = TRACTOR-TRUCK OR SEMI-TRAILER - 5 AXLES
6 = BUSES AND TRUCKS WITH TRAILERS

TRAFFIC ESTIMATE DATA

DESIGN YEAR 1985 PART 4 OF 4

FOR

T.H. 212 S.P. 8214-47 LENGTH -- MILES

COUNTY Washington LOCATION T.H. 694 to St. Croix River

BASED ON

1985 ADT FROM TRAFFIC ANALYSIS UNIT

SHOWING

TOTAL ADT ON SEGMENTS 34 THROUGH 37 AS

DEFINED ON ATTACHED INDEX MAP on page 4 for Alternate 2B

| VEHICLE # TYPE | SEGMENT NUMBER | | | | | | | | | |
|-----------------------------|----------------|------|------|------|--|--|--|--|--|--|
| | 34 | 35 | 36 | 37 | | | | | | |
| 0 | 2396 | 3851 | 3179 | 1440 | | | | | | |
| 1 | 55 | 83 | 68 | 33 | | | | | | |
| 2 | 7 | 19 | 16 | 2 | | | | | | |
| 3 | 4 | 15 | 14 | 2 | | | | | | |
| 4 | 9 | 23 | 21 | 6 | | | | | | |
| 5 | 22 | 71 | 67 | 11 | | | | | | |
| 6 | 7 | 38 | 35 | 6 | | | | | | |
| TOTAL ADT | 2500 | 4100 | 3400 | 1500 | | | | | | |
| TOTAL H. COMM. ADT | 104 | 249 | 221 | 60 | | | | | | |
| TOTAL DHV | | | | | | | | | | |
| DIRECTIONAL DISTRIBUTION | | | | | | | | | | |

* VEHICLE TYPE CODE

- 0 = PASSENGER CARS AND 4 TIRE TRUCKS
1 = SINGLE UNIT-2 AXLE-6 TIRE TRUCKS
2 = SINGLE UNIT-3 AXLE TRUCKS
3 = TRACTOR-TRUCK OR SEMI-TRAILER- 3 AXLES
- 4 = TRACTOR-TRUCK OR SEMI-TRAILER - 4 AXLES
5 = TRACTOR-TRUCK OR SEMI-TRAILER - 5 AXLES
6 = BUSES AND TRUCKS WITH TRAILERS

Basic Data, Method, And Assumptions

1985 ADT and DHV are presented in SPAR M-32A transmitted in January, 1972.

1985 total heavy commercial ADT agrees with System 14 heavy truck ADT study. With design changes taken into account, the data in this report is consistent with data presented in previous reports in the study area.

1982 volumes may be obtained by decreasing these 1985 volumes by 10%.
1994 volumes may be obtained by increasing 1985 volumes by 30%.